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patients starting second line drug treatment who require faster correction of their anaemia than would be achieved by the modifying effect on the disease of such drugs.

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Simple aspiration versus intercostal tube drainage for spontaneous pneumothorax in patients with normal lungs

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Two clinical trials in the 1960s led to opposing recommendations for initial management of spontaneous pneumothorax,^{1,2} and the debate has continued since. Recently, simple aspiration has gained favour as a more acceptable procedure for patients and doctors.^{3,4} We conducted a randomised comparison of simple aspiration with intercostal drainage to assess acceptability and outcome at one year.

Subjects, methods, and results

Patients who presented with spontaneous pneumothorax and whom the admitting team thought required a drainage procedure were randomly allocated to either simple aspiration or intercostal drainage. Patients with signs of a tension pneumothorax or with lung disease other than previous pneumothorax were excluded.

Simple aspiration was undertaken by inserting a 16-18 gauge catheter under local anaesthetic and aspirating air through a three way tap with the exit tube under water. The procedure was continued until no more air could be aspirated, the patient became uncomfortable, or a maximum of three litres had been removed. Intercostal drainage was managed according to the participating physician's usual practice. No sclerosing drugs were allowed with either technique.

Patients completed symptom score charts indicating the degree of pain experienced during drainage and throughout their hospital admission. Patients were reviewed at one and 12 months, and recurrence of pneumothorax or referral for thoracic surgery was recorded. The size of pneumothorax in presenting radiographs was graded (see table).

Both groups were similar with respect to age, sex, height, weight, smoking history, lung function, and history of pneumothorax (table). There were no significant differences between the two groups in either the size or side of pneumothorax. No difference was reported in pain experienced while undergoing drainage, but those treated by intercostal drainage experienced significantly more pain during their hospital admission and spent an average of two days longer in hospital (table).

In all 28 out of 35 aspirations were successful, although five patients required two aspirations. The

remaining seven patients were subsequently treated by intercostal drainage. None of them had a recurrence or required pleurectomy within one year. The amount of air aspirated during the first aspiration was significantly different in successful and unsuccessful aspirations (successful 1.59 (SD 0.72) v unsuccessful 2.52 (0.91) l; $P<0.01$). A logistic regression model found no significant associations with failed aspiration. In particular, there was no association with a history of pneumothorax or initial radiographic appearances. No significant differences were found in the recurrence rate at one year, but more patients who had intercostal drainage required pleurectomy than those patients who had had aspiration ($P=0.02$).

Comment

Simple aspiration is a simple and safe procedure and should be the initial treatment of choice for patients with normal lungs who present with a spontaneous pneumothorax, irrespective of its size. This study has shown that aspiration is less painful than intercostal drainage, leads to a shorter admission, and reduces the need for pleurectomy with no increase in recurrence rate at one year.

As a result of this study, and after consultation with over 150 British respiratory physicians and thoracic

Characteristics and clinical details of patients having aspiration or intercostal drainage for pneumothorax. Values are means (SD) unless stated otherwise

	Aspiration (n=35)	Intercostal drain (n=38)	P value
Age (years)	34.6 (15.0)	34.6 (13.1)	0.8
Sex (M/F)	28/7	29/9	0.92
Height (m)	1.79 (0.11)	1.76 (0.09)	0.81
Weight (kg)	64.8 (9.2)	63.6 (11.0)	0.65
Smoking history (pack years)	8.09 (9.32)	7.94 (9.16)	0.95
Previous pneumothorax	6	8	0.90
% Of predicted FEV ₁ after one month	94.5 (25.7)	97.3 (17.1)	0.70
Radiographic appearances:			
Left side pneumothorax	13 (n=30)	12 (n=32)	0.83
Size of pneumothorax:			
Small rim	3	1	0.054
Partial collapse	16	12	
Complete collapse	10 (n=29)	18 (n=31)	
Clinical details:			
Pain score during procedure	0.9 (0.9)	1.1 (0.9)	0.33
Average daily pain score	0.7 (0.7)	1.5 (0.6)	<0.001
Total pain score	2.7 (3.3)	6.7 (3.6)	<0.001
Hospital stay (days):			
Mean (SD)	3.2 (2.9)	5.3 (3.6)	0.005
Median	2	4.5	
No having pleurectomy			
within 1 year	0	7	0.02
No of recurrences	5	10	0.40
	(n=30)	(n=35)	

FEV₁=Forced expiratory volume in one second.

surgeons, the standards of care committee of the British Thoracic Society has published guidelines covering the management of spontaneous pneumothorax.⁵

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Partridge, Whipps Cross Hospital, London; J A Siddorn, Royal Devon and Exeter Hospital, Exeter; J A M Turner, Royal Victoria Hospital, Bournemouth; R J White, Frenchay Hospital, Bristol. Drs Ferguson, Harvey, and McGavin were members of the pneumothorax subcommittee.

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Implementation of government recommendations for immunising infants at risk of hepatitis B

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Uptake of second and third doses of hepatitis B vaccine in 17 babies born to mothers who were carriers of hepatitis B virus

	No of babies
Second dose of vaccine:	
Vaccinated	9
At 1 month	7
At 2 months	2
Not vaccinated	8
Moved before birth*	3
Community not notified	3
Failed to attend	2
Third dose of vaccine:	
Vaccinated	3
At 5 months	1
At 8 months†	2
Not vaccinated	14
Moved before birth*	3
Community not notified	3
Failed to attend‡	8

*No follow up address, presumed not vaccinated.

†Twins; parents failed to bring them twice.

‡Two moved away, one emigrated.

Babies born to mothers positive for hepatitis B e antigen have an 80% risk of perinatal infection and a 40% risk of death from hepatitis B associated cirrhosis or hepatocellular carcinoma in later life; babies born to mothers who are positive for hepatitis e antibody are at much lower risk. The Department of Health recommends vaccination at birth and at the ages of 1 month and 6 months for babies born to infected mothers. Babies at high risk should also receive hepatitis B immunoglobulin within 12 hours of birth.¹ In 1992 we became concerned that these recommendations were not being carried out reliably in north Manchester. We therefore instituted a new protocol and audited the results.

Subjects, methods, and results

We produced a neonatal pack for hepatitis B vaccination for attachment to the notes of pregnant women who were infected with hepatitis B virus and were attending the antenatal clinic in North Manchester General Hospital. The pack comprised instruction sheets for the obstetric and paediatric staff and a vaccination notification form. When the virology department identified hepatitis B infection in a pregnant woman the consultant virologist sent her consultant obstetrician the pack with a letter explaining the results and detailing the recommended prophylactic schedule. After the birth the on call paediatrician was notified and administered recombinant vaccine (10 µg, Smith-Kline Beecham), with or without specific immunoglobulin, and then completed and sent two notification forms. One form initiated arrangements for vaccination at 1 and 6 months in the community paediatric clinic, and the other initiated arrangements for collecting blood samples from high risk babies in hospital at 6 and 12 months. The community and hospital clinics sent two appointments for each vaccination and venepuncture, and a health visitor called if the parents failed to attend with their baby. A retrospective one year audit of this vaccination programme was performed using hospital, community, and virology records.

Sixteen women who were carriers of hepatitis B virus (eight high risk carriers, eight low risk carriers, all with poor English) gave birth to 17 babies. Three mothers moved before giving birth and left no follow up address. The remaining 14 neonates received the first dose of vaccine after birth. One of the eight babies at high risk did not receive immunoglobulin, despite its having been prescribed. The immunoglobulin issued by the laboratory for this baby was later discovered unused. Only nine out of 17 babies received the second dose of vaccine and only three out of 17 the third dose. Vaccine was sometimes given late because of poor attendance (table). Blood samples were obtained after immunoglobulin and two or three doses of vaccine in three of the eight babies at high risk. A poor (<100 IU/l) surface antibody response was detected in two, and the third was a carrier of the e antigen.

Comment

Selective vaccination policies create enormous practical difficulties, especially when most of the affected babies are from ethnic minority groups that are very mobile and have a poor understanding of English. Universal rather than selective screening of pregnant women for hepatitis B virus is increasingly being adopted, and this will expand the difficulties encountered in immunising infants at risk.

Universal hepatitis B vaccination incorporated into the schedule of routine childhood immunisations would reduce the practical difficulties we identified with the current selective programme. At present, neither the second nor third dose of vaccine coincides with routine childhood immunisations in the United Kingdom. Different vaccination schedules (0, 2, and 6 months) resulted in a seroconversion rate of 99% at 1 year,² and protective antibody responses were seen one month after administering immunoglobulin and vaccine at birth.³ This implies that the second dose of vaccine could be delayed. Selective immunoglobulin administration would be reserved for babies at high risk. The problem of inadequate maternal records resulting in failure to deliver this treatment could be minimised by using the neonatal pack.⁴

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